

WASTE TREATMENT LAGOON

PRACTICE INTRODUCTION

USDA, Natural Resources Conservation Service - practice code 359



WASTE TREATMENT LAGOON

A waste treatment lagoon is an impoundment made by excavation or earth fill to provide storage for biological treatment of animal or other agriculture waste.

PRACTICE INFORMATION

The purpose of this practice is to store and biologically treat organic waste, reduce pollution, and protect water quality.

This practice applies under the following conditions:

1. Where a complete waste management system has been planned.
2. Waste generated by agriculture production and/or processing needs treatment.
3. A suitable location is available.
4. The soils are suitable for retaining the waste or can be sealed to prevent seepage.
5. A water supply is adequate maintain the design depth of water in the lagoon.

The three general types of waste treatment lagoons are the following:

1. Anaerobic - require less surface area than naturally aerobic lagoons but may give off offensive odors.
2. Naturally aerobic - require more surface area but are relatively odor free.
3. Mechanically aerated - comparable in size to anaerobic lagoons but require energy for aeration.

Waste treatment lagoons are located as near the source of waste as possible but as far from human dwellings as possible. The location should also be where prevailing winds will carry odors away from residences and public areas.

To improve efficiency and reduce sludge buildup, solids should be removed from the waste before it enters the lagoon. A solids trap or separator should be installed between the waste source and the lagoon.

Additional information including design criteria and specifications are filed in the local NRCS Field Office Technical Guide.

The following pages contain the conservation effects expected to occur when this practice is applied. These effects are subjective and somewhat dependent on variables such as climate, terrain, soil, etc. Users are cautioned that these effects are estimates that may or may not apply to a specific site.

CONSERVATION PRACTICE PHYSICAL EFFECT WORKSHEET

NOTE: recorded in Microsoft word 6.0 - use tabs to change cells/fields

STATE	Iowa	FIELD OFFICE		DATE	12/5/96
PRACTICE: 359 Waste Treatment Lagoon			NOTES:		
RESOURCE: SOIL			Help Message: Click on form field for choice lists. Tab key to move around. "N/A" is the default.		
RESOURCE CONCERN: EROSION					
RESOURCE INDICATORS			PHYSICAL EFFECTS		
SHEET AND RILL			N/A		
WIND			N/A		
EPHEMERAL GULLY			N/A		
CLASSIC GULLY			N/A		
STREAMBANK			N/A		
IRRIGATION INDUCED			N/A		
SOIL MASS MOVEMENT			N/A		
ROADBANK/CONSTRUCTION			N/A		
OTHER					
RESOURCE CONCERN: SOIL CONDITION					
SOIL TILTH			N/A		
SOIL COMPACTION			N/A		
SOIL CONTAMINATION					
• SALTS			insignificant		
• ORGANICS			insignificant		
• FERTILIZERS			insignificant		
• PESTICIDES			insignificant		
• OTHER					
DEPOSITION/DAMAGE					
• ONSITE			insignificant		
• OFFSITE			insignificant		
DEPOSITION/SAFETY					
• ONSITE			insignificant		
• OFFSITE			insignificant		
OTHER					
RESOURCE: WATER					
RESOURCE CONCERN: WATER QUANTITY					
SEEPS			insignificant		
RUNOFF/FLOODING			slight decrease in runoff/flooding		
EXCESS SUBSURFACE WATER			insignificant		
INADEQUATE OUTLETS			N/A		
WATER MGT. IRRIGATION					
• SURFACE			N/A		
• SPRINKLER			N/A		
WATER MGT. NON-IRRIGATED			N/A		
RESTRICTED FLOW CAPACITY (H2O convey.)					
• ONSITE			insignificant		
• OFFSITE			insignificant		
RESTRICTED STORAGE			N/A		
OTHER					

RESOURCE: WATER	
RESOURCE CONCERN: WATER QUALITY	
RESOURCE INDICATORS	PHYSICAL EFFECTS
GROUNDWATER CONTAMINANTS	
• PESTICIDES	insignificant
• NUTRIENTS AND ORGANICS	insignificant
• SALINITY	insignificant
• HEAVY METALS	insignificant
• PATHOGENS	insignificant
• OTHER	
SURFACE WATER CONTAMINANTS	
• PESTICIDES	sign. reduction in SWater contam./pesticides
• NUTRIENTS AND ORGANICS	sign. reduction in SWater contam./nutri.,organics
• SUSPENDED SEDIMENTS	sign. reduction in SWater contam./susp. sedi.
• LOW DISSOLVED OXYGEN	sign. reduction in SWater contam./low oxygen
• SALINITY	sign. reduction in SWater contam./salinity
• HEAVY METALS	sign. reduction in SWater contam./heavy metals
• WATER TEMPERATURE	moderate reduction in SWater contam./H2O temp.
• PATHOGENS	sign. decrease in SWater contam./pathogens
AQUATIC HABITAT SUITABILITY	significant improvement in Aqua. Hab. Suit.
OTHER	
RESOURCE: AIR	
RESOURCE CONCERN: AIR QUALITY	
AIRBORNE SEDIMENT AND SMOKE PARTICLES	
• ONSITE SAFETY	N/A
• OFFSITE SAFETY	N/A
• ONSITE STRUCT. PROBLEMS	N/A
• OFFSITE STRUCT. PROBLEMS	N/A
• ONSITE HEALTH	N/A
• OFFSITE HEALTH	N/A
AIRBORNE SEDIMENT CAUSING CONVEYANCE PROBLEMS	N/A
AIRBORNE CHEMICAL DRIFT	N/A
AIRBORNE ODORS	moder. increase in airborn odors
FUNGI, MOLDS, AND POLLEN	N/A
OTHER	
RESOURCE CONCERN: AIR CONDITION	
AIR TEMPERATURE	N/A
AIR MOVEMENT (windbreak effect)	N/A
HUMIDITY	insignificant
OTHER	

[illegible]

RESOURCE: HUMAN	
RESOURCE CONCERN: SOCIAL CONSIDERATIONS	
RESOURCE INDICATORS	PHYSICAL EFFECTS
PUBLIC HEALTH AND SAFETY	sign. improvement in public health & safety
PRIVATE/PUBLIC VALUES	sign. improvement in private/public values
CLIENT CHARACTERISTICS	N/A
RISK TOLERANCE	N/A
TENURE	N/A
OTHER	
RESOURCE CONCERN: CULTURAL CONSIDERATIONS	
ABSENCE/PRESENCE OF CULTURAL RESOURCES	situational regarding cultural resources
SIGNIFICANCE OF CULTURAL RESOURCES	situational regarding cultural resources
MITIGATION OF NEGATIVE CULTURAL RES. IMPACTS	situational regarding cultural resources
OTHER	